Atmospheric Scientist

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Atmospheric and Planetary Scientist

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My research deals with the origin and evolution of the atmospheres of Earth and Mars, the chemistry of their atmospheres, the ways that life has changed Earth's atmosphere, and the potential impact of life on the composition and chemistry of Mars' atmosphere and on global climate change.

My areas of expertise

- The origin and evolution of the atmospheres of Earth and Mars
- Atmospheric photochemistry
- The impact of life on the chemical composition of atmospheres
- The search for life outside the Earth
- The use of robotic airplanes to explore Mars

How I first became interested in this profession

As a sixth grade student in Brooklyn, New York, I still remember seeing (as a full color inset in my science textbook) the very first photographs of Mars and the other planets obtained with the new 200-inch telescope at Mount Palomar in California. At that time it was the largest telescope in the world. Mars and the other planets circling the Sun photographed by the telescope are distant worlds just like the Earth. Our galaxy, the Milky Way galaxy, is filled with billions of Suns, and the universe is filled with billions of galaxies. At that point, I decided that I wanted to study Mars and to search for life in the Solar System as my career goal.

What helped prepare me for this job

In high school, I took all of the science and math courses that I could. Growing up in New York City provided many opportunities to pursue science. As a junior and senior high school student, on Saturdays I took courses in science at the Hayden Planetarium, the American Museum of Natural History, and at the Brooklyn Children's Museum. I also joined the Junior Astronomy Club, then located at the Hayden Planetarium. The Junior Astronomy Club provided many opportunities to pursue a career in science by providing telescope-making courses and weekly opportunities to observe the night sky at observation sites on the outskirts of New York City. Many former members of the Junior Astronomy Club are today distinguished scientists studying the planets, stars and galaxies.

My role models or inspirations

In both junior and senior high school, I was fortunate to have enthusiastic and very supportive science teachers.

My education and training

- B.S. in physics from Brooklyn College of the City University of New York
- M.S. in meteorology from New York University
- M.S. in aeronomy and planetary atmospheres from the University of Michigan
- Ph.D. in atmospheric science from the University of Michigan
- As a graduate student I worked at the NASA Goddard Institute for Space Studies in New York City

My career path

After working at NASA Goddard Institute for Space Studies as a graduate student, I joined the NASA Langley Research Center in Hampton, Virginia and have been there ever since.

What I like about my job

The study of the Earth and Mars and the search for life on Mars is very exciting and relevant.

What I don't like about my job

As a lead research scientist at a NASA research center, I am required to complete a great deal of paperwork. The paperwork involves workforce, budget, schedules, etc. This paperwork significantly cuts into my research time.

My advice to anyone interested in this occupation

If you would like a career studying the Earth, Mars, and the other planets, be sure to get a strong foundation in physics, chemistry, geology, biology, calculus, differential equations, and computer programming.